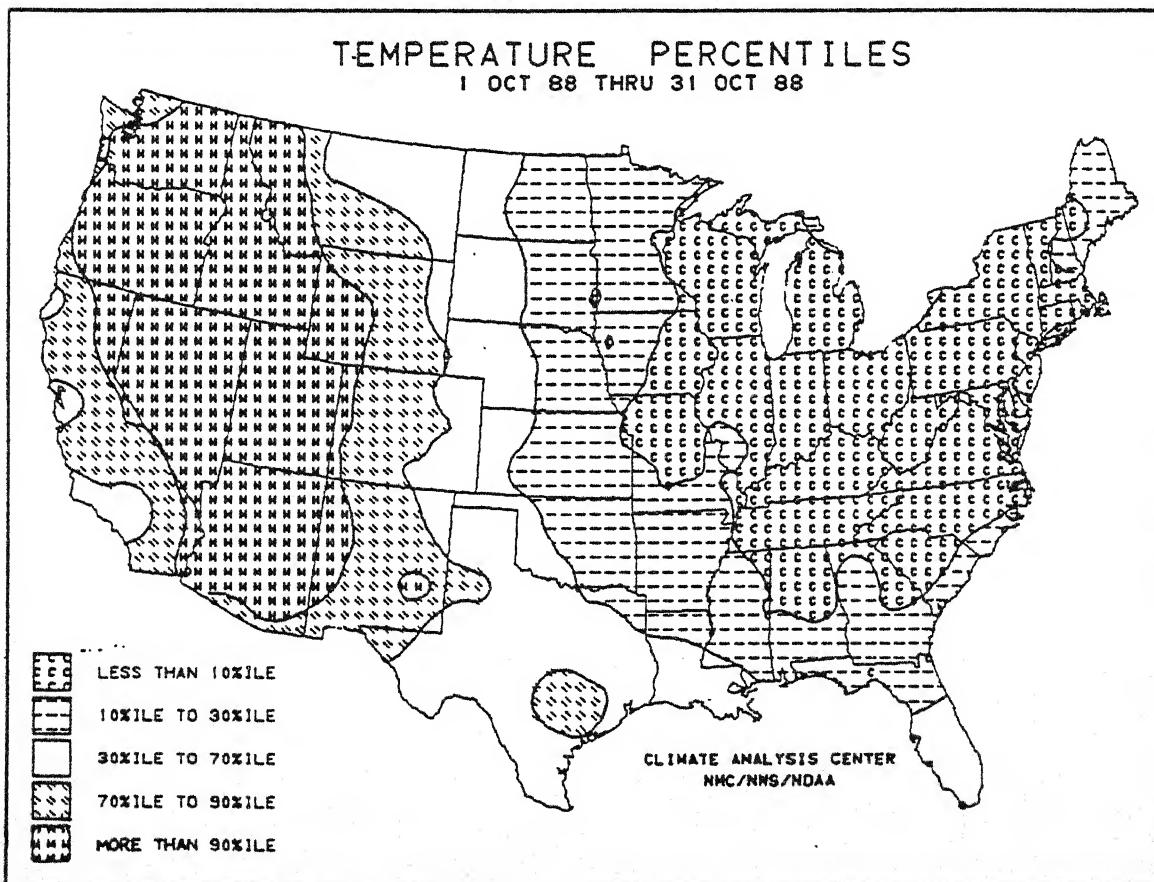


WEEKLY CLIMATE BULLETIN

No. 88/45

WASHINGTON, DC

NOVEMBER 5, 1988



STATISTICALLY AND HISTORICALLY, THIS OCTOBER WAS ONE OF THE COLDEST AND WARMEST YEARS IN THE EASTERN THIRD AND WESTERN THIRD OF THE NATION, RESPECTIVELY. FOR FURTHER DETAILS, REFER TO THE SPECIAL CLIMATE SUMMARY BEGINNING ON PAGE 11.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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NOAA, National Weather Service
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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF NOVEMBER 5, 1988
(Approximate duration of anomalies is in brackets.)

1. Southwestern United States:

WARM CONDITIONS PREVAIL.

Temperatures were as much as 6.8°C (12.2°F) above normal last week as unusually warm conditions persisted. See U.S. Weekly Weather Highlights [5 weeks].

2. Midwestern United States:

EARLY AUTUMN CHILL.

A series of early season arctic air masses brought unusually cold conditions to the area; however, temperatures moderated somewhat from the previous week. See U. S. Weekly Weather Highlights [5 weeks].

3. Argentina:

BELLOW NORMAL PRECIPITATION PERSISTS.

Generally less than 11.0 mm (0.43 inches) of precipitation was reported in most of northern Argentina [19 weeks].

4. Spain and Portugal:

AREA UNUSUALLY WARM.

Temperatures averaged up to 4.6°C (8.3°F) above normal as unusually warm conditions prevailed [5 weeks].

5. Eastern Europe:

UNUSUALLY LOW TEMPERATURES OCCUR.

Unseasonably cold conditions were reported in much of eastern Europe from northern Norway and northwestern European Soviet Union to Greece and western Turkey. Temperatures were as much as 16.4°C (29.5°F) below normal [2 weeks].

6. Eastern Asia:

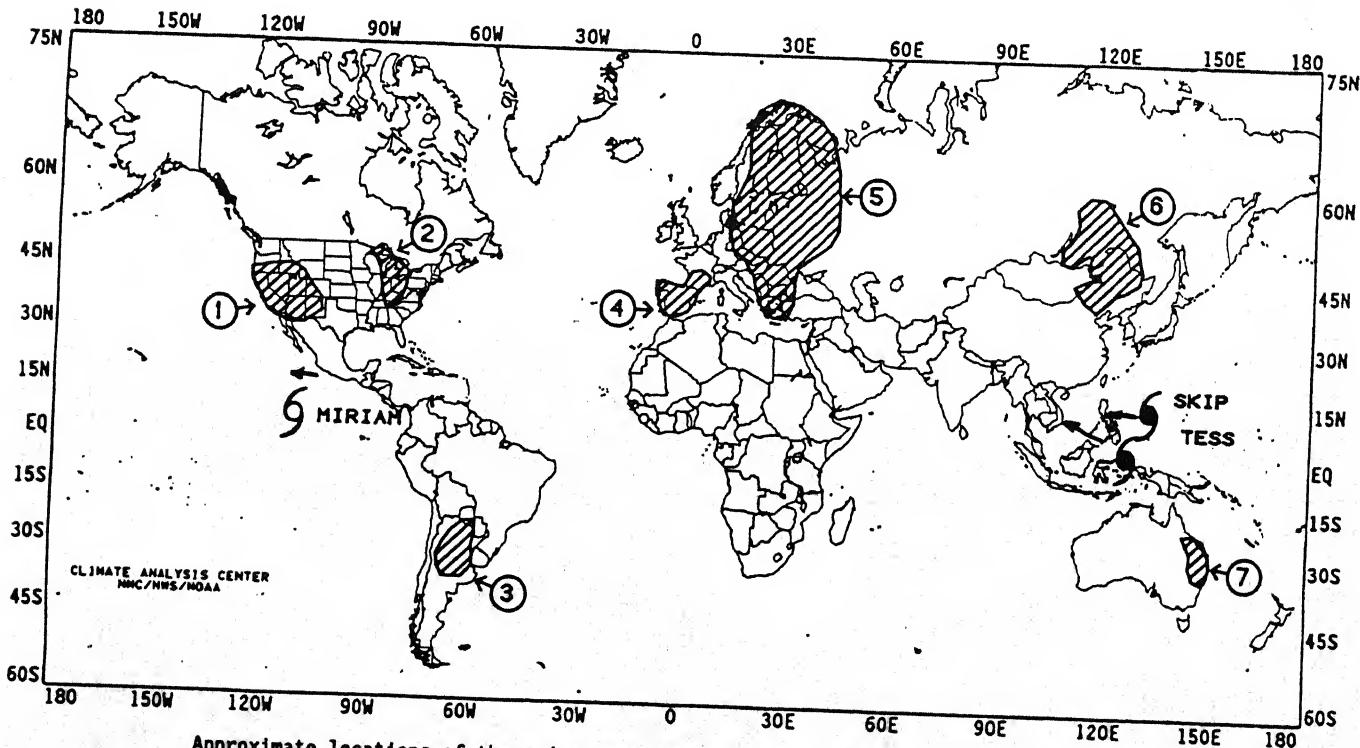
WARM CONDITIONS REMAIN.

A late season warm spell, with temperatures as much as 10.5°C (18.9°F) above normal, persisted across southeastern Siberia and northeastern China [4 weeks].

7. Australia:

UNUSUALLY DRY IN EAST.

Little or no precipitation was reported as unusually dry conditions developed on the east coast of southeastern Queensland and northeastern New South Wales [4 weeks].



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF OCTOBER 30 THROUGH NOVEMBER 5, 1988.

Widespread, heavy precipitation occurred throughout much of the eastern third of the nation and along the Pacific Coast from northern California northward to Vancouver Island, providing some relief from both short and long-term dryness in the latter area (see Table 1). In the West, a strong Pacific storm system dumped between 2 and 6 inches of rain on coastal locations, while farther inland, up to 16 inches of precipitation was recorded in portions of Washington's and Oregon's Cascade Range, according to the River Forecast Centers. Early in the week, an intense low pressure center brought heavy precipitation to most of New England as many stations in central New York, Connecticut, Massachusetts, Vermont, New Hampshire, and southern Maine measured between 2 and 4 inches of precipitation (see Figure 1). As the week progressed, a strengthening area of low pressure in the western Great Lakes triggered numerous showers and sometimes violent thunderstorms in sections of the Ohio and Tennessee Valleys and throughout the southern and middle Atlantic Coast states. More than 2 inches of rain fell on a broad area from northern Alabama and central Tennessee eastward to the Carolinas and northward to northern Virginia (see Figure 2), while heavy snowfall (up to two feet at Wakefield, MI) was reported in northeastern Minnesota, northern Wisconsin, and the Upper Peninsula of Michigan. Light to moderate precipitation amounts were observed in the northern halves of the Pacific Coast and Intermountain

regions, in parts of the northern and southern Great Plains, and throughout most of the country east of the Mississippi River. Little or no precipitation occurred in the Southwest, in most of the Rockies, the central Great Plains, and along the central Gulf Coast.

Unseasonably mild weather persisted in the western half of the nation for the fifth consecutive week, while temperatures moderated in the eastern third of the U.S. but still remained below normal. In the West, the greatest positive departures (between +9° and +13°F) were located in the southern Intermountain Region, the Great Basin, and the northern half of the Rockies (see Table 2). During the week, more than 30 stations scattered throughout the West and South tied or set new daily record highs as readings in the nineties were observed in the desert Southwest, Texas, and Florida. In contrast, colder weather covered the Great Lakes, mid-Atlantic, and New England regions as temperatures averaged 4° to 6°F below normal from New York southward to New Jersey (see Table 3). During the last two days of October, dozens of cities in New England and the Midwest established new daily record minimum temperatures, while lows in the teens were recorded in the northern Great Plains, upper Midwest, and western New England (see Figure 3). Bitterly cold Arctic air remained in northern and central Alaska for the fourth straight week as temperatures averaged as much as 10°F below normal.

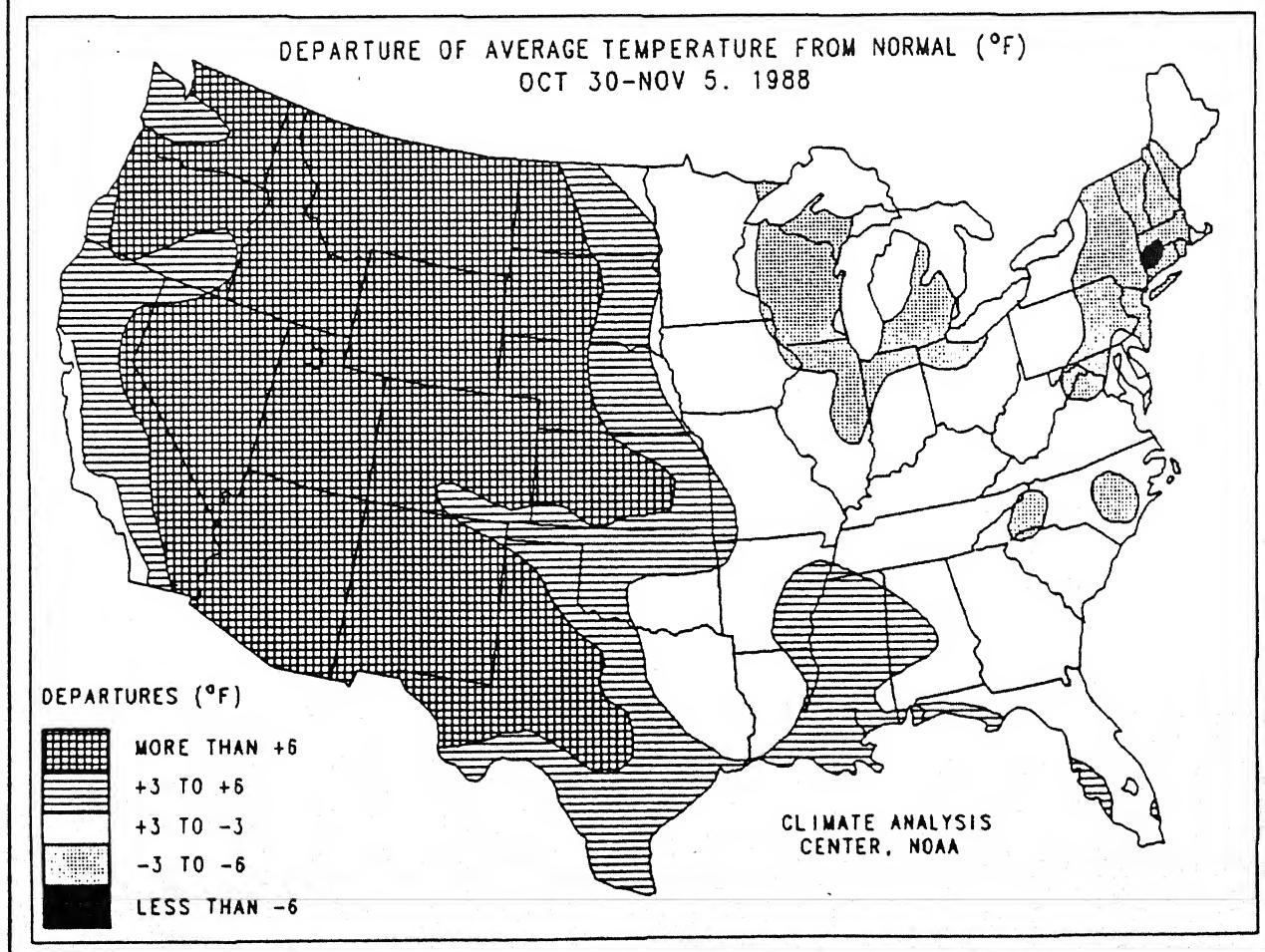
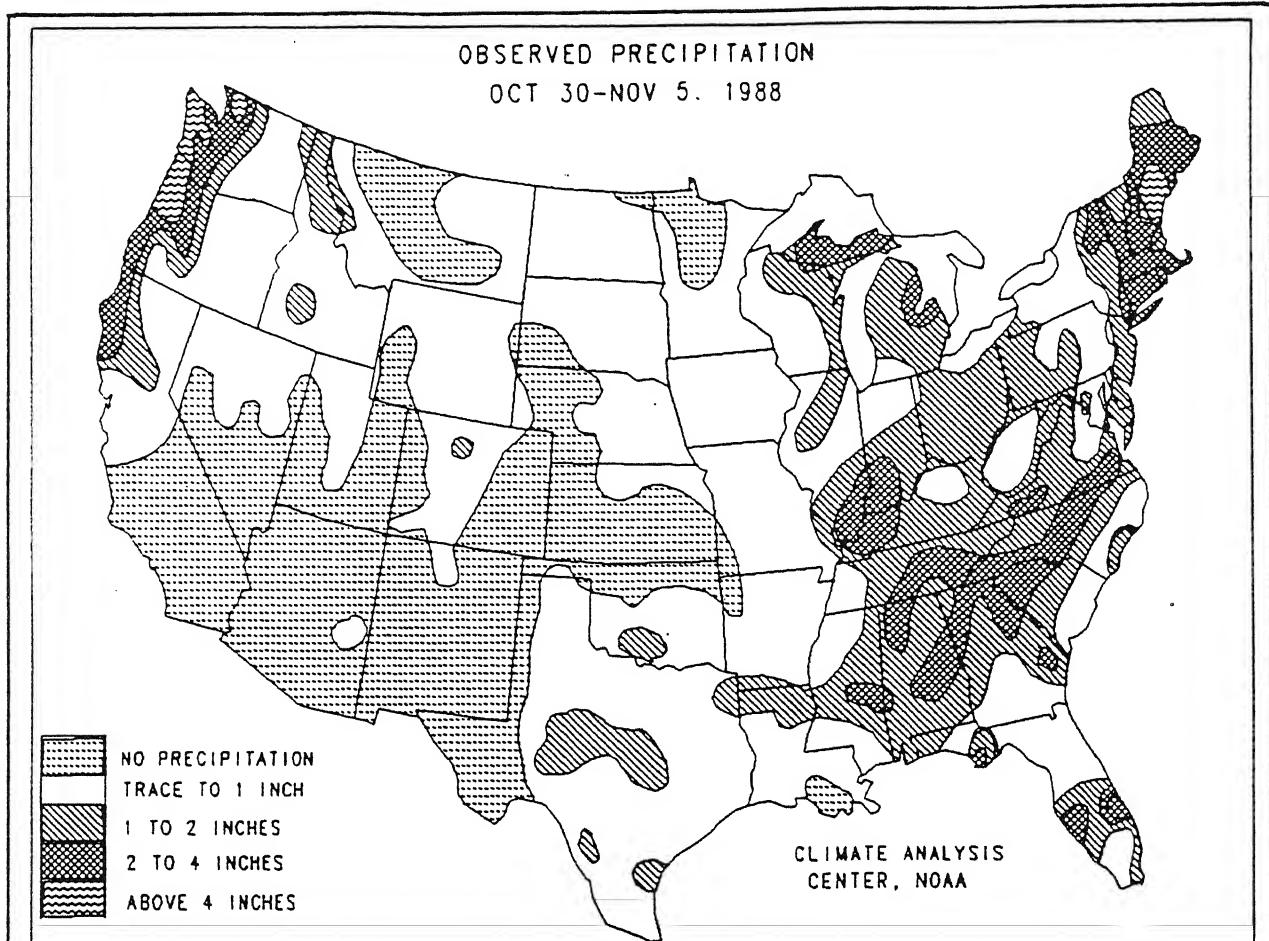


TABLE 1. Selected stations with more than two and a half inches of precipitation for the week.

<u>Station</u>	<u>Amount (In)</u>	<u>Station</u>	<u>Amount (In)</u>
Quillayute, WA	6.94	Hilo/Lyman, Hawaii, HI	3.24
Mt. Washington, NH	6.61	West Palm Beach, FL	3.16
Portland, ME	5.02	Gwinn/Sawyer AFB, MI	3.07
Eugene, OR	4.63	Sault Ste. Marie, MI	3.01
North Bend, OR	4.42	Montgomery, AL	2.99
Astoria, OR	4.05	Columbus/Ft. Benning, GA	2.86
Olympia, WA	3.98	Raleigh/Durham, NC	2.76
Brunswick NAS, ME	3.85	Augusta, ME	2.76
Tacoma/Ft. Lewis AFB, WA	3.58	Columbia, SC	2.65
Seattle/Tacoma, WA	3.54	Annette Island, AK	2.63
Evansville, IN	3.53	Providence, RI	2.60
Marquette, MI	3.48	Worcester, MA	2.58
Portsmouth/Pease AFB, NH	3.32	Bellingham, WA	2.56
Tacoma/McChord AFB, WA	3.30	Muscle Shoals, AL	2.52

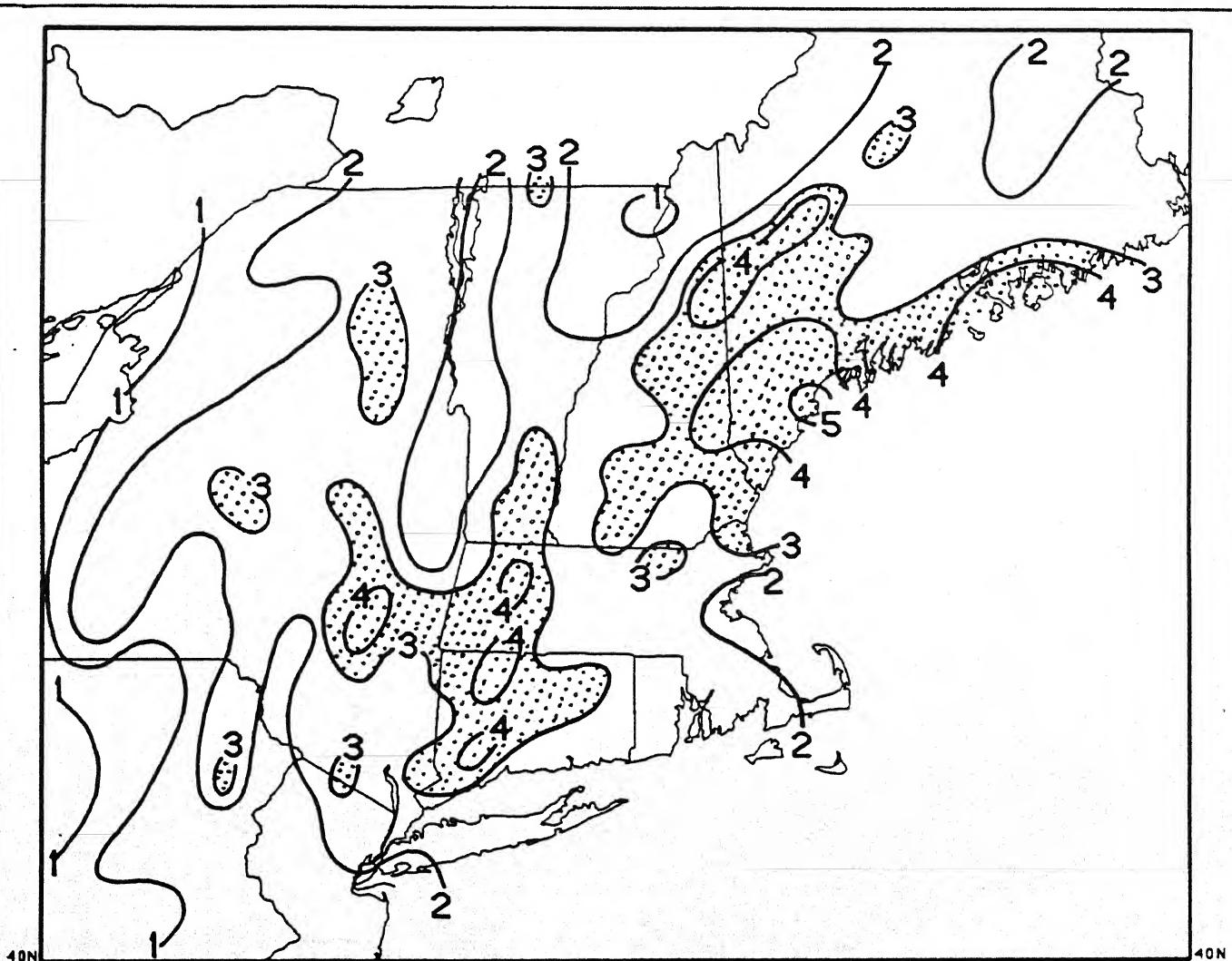


Figure 1. Total precipitation (inches) during Oct. 30-Nov. 5, 1988. Isopleths drawn for 1, 2, 3, 4, and 5 inches only, and stippled areas are greater than 3 inches. Early in the week, an intense storm system off the coast of Maine lashed much of New England with high winds and heavy precipitation.

TABLE 2. Selected stations with temperatures averaging greater than 9.0°F ABOVE normal for the week.

<u>Station</u>	<u>IDepNml</u>	<u>AvgT(°F)</u>	<u>Station</u>	<u>IDepNml</u>	<u>AvgT(°F)</u>
Phoenix, AZ	+12.7	78.2	Cheyenne, WY	+9.8	49.0
Roswell, NM	+12.2	64.1	Bozeman, MT	+9.8	45.5
Delta, UT	+11.7	54.1	Havre, MT	+9.6	46.4
Lander, WY	+11.1	47.9	Yuma, AZ	+9.5	78.0
Billings, MT	+11.0	51.3	Daggett, CA	+9.5	70.6
Cut Bank, MT	+11.0	45.8	Walla Walla, WA	+9.5	56.8
Las Vegas, NV	+10.9	69.8	Salt Lake City, UT	+9.5	54.4
Worland, WY	+10.9	48.0	Colorado Springs, CO	+9.5	51.6
Miles City, MT	+10.6	48.9	Redmond, OR	+9.5	51.2
Reno, NV	+10.5	54.4	Spokane, WA	+9.5	48.8
Casper, WY	+10.5	48.6	Cedar City, UT	+9.4	53.4
Sheridan, WY	+10.5	48.4	Great Falls, MT	+9.2	48.8
Ely, NV	+10.4	48.9	El Paso, TX	+9.1	65.4
Prescott, AZ	+10.3	58.6	Boise, ID	+9.1	53.5
Burley, ID	+10.2	51.4	Farmington, NM	+9.1	53.4
Butte, MT	+10.0	42.7	Elko, NV	+9.1	49.3
Pendleton, OR	+ 9.9	54.9	Sidney, NE	+9.1	48.9
Helena, MT	+ 9.9	46.6			

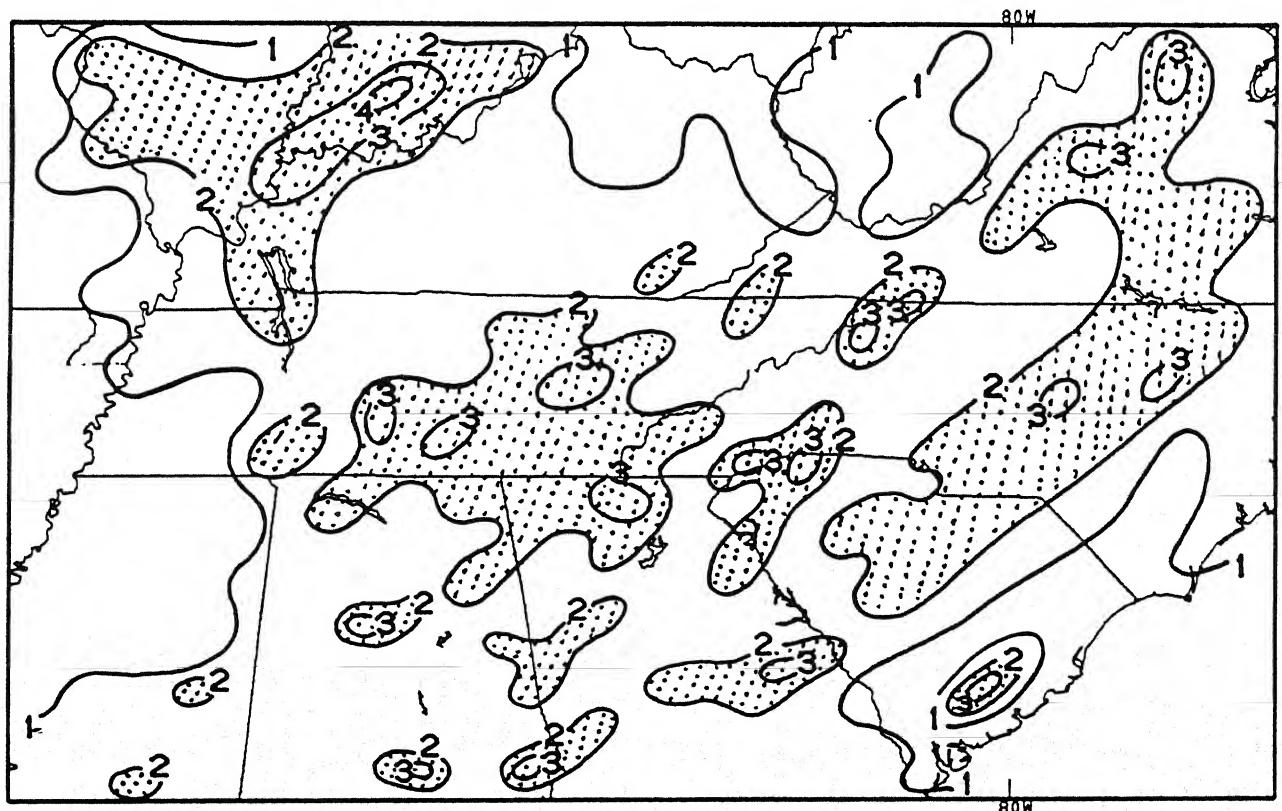
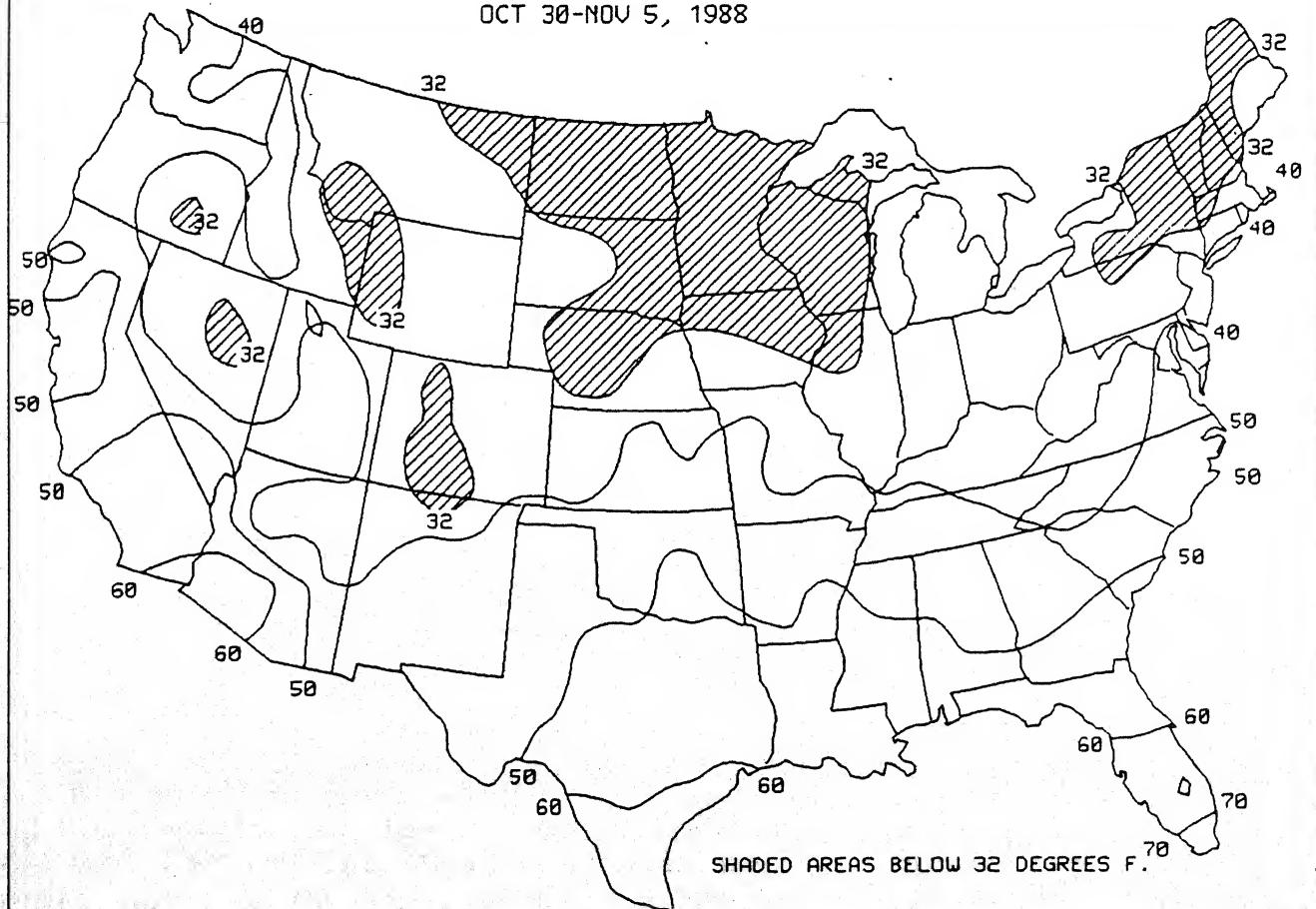


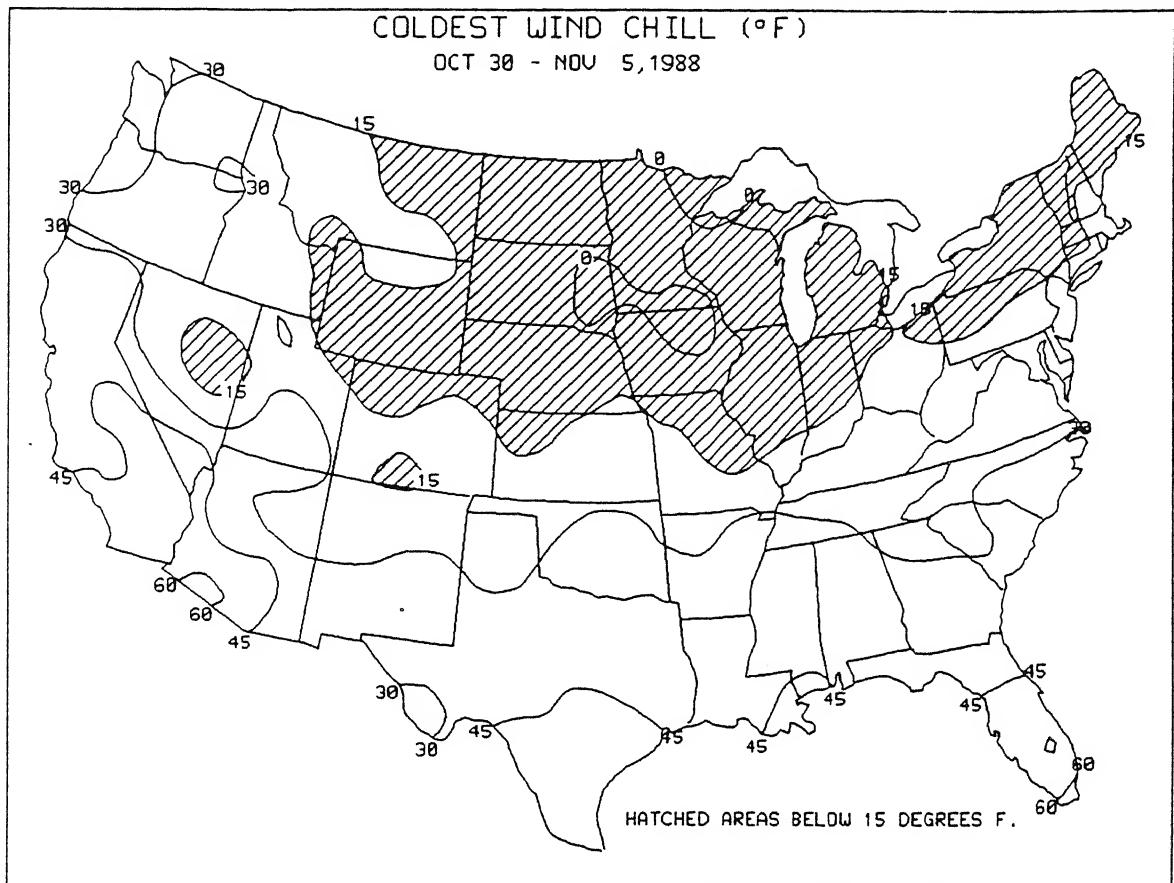
Figure 2. Total precipitation (inches) during Oct. 30-Nov. 5, 1988. Isopleths drawn for 1, 2, 3, and 4 inches only, and stippled areas are greater than 2 inches. Numerous showers and thunderstorms drenched most of the Tennessee Valley and Appalachians and brought additional relief to the area's long-term dryness.

TABLE 3. Selected stations with temperatures averaging 4.5°F or more BELOW normal for the week.

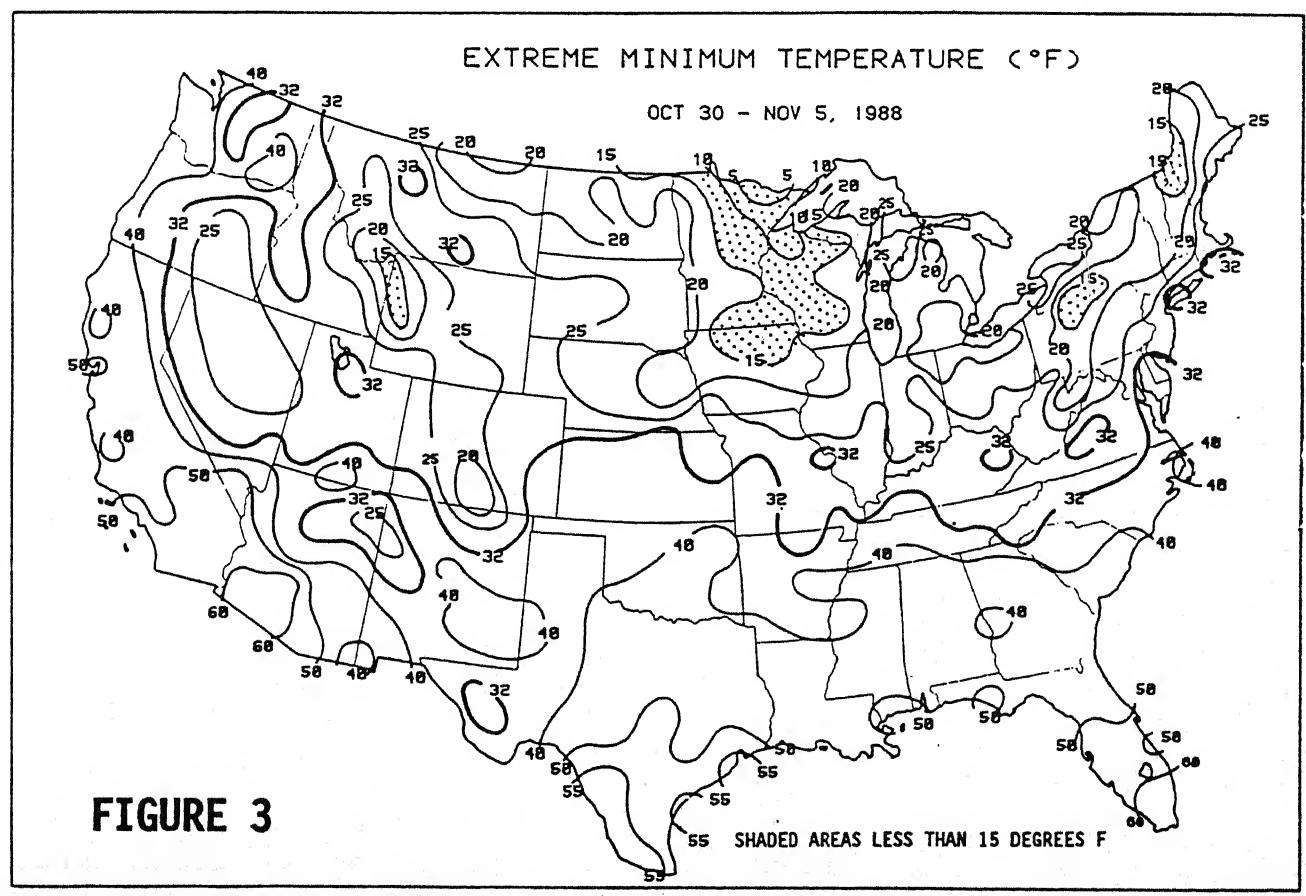
<u>Station</u>	<u>TDepNml</u>	<u>AvgT(°F)</u>
Fairbanks, AK	-9.5	2.7
Gulkana, AK	-8.1	7.5
Barrow, AK	-7.9	-2.6
Glens Falls, NY	-5.7	36.7
Big Delta, AK	-5.6	9.2
Poughkeepsie, NY	-5.5	39.9
Hartford, CT	-5.5	41.1
Montpelier, VT	-5.3	34.6
Park Falls, WI	-5.2	31.7
Massena, NY	-5.2	36.4
Lebanon, NH	-4.9	36.5
Utica, NY	-4.9	38.7
Albany, NY	-4.9	39.6
Atlantic City, NJ	-4.9	45.5
Trenton, NJ	-4.7	45.9
McGrath, AK	-4.5	9.5
Mt. Clements/Selfridge AFB, MI	-4.5	40.5
Bridgeport, CT	-4.5	45.3
Millville, NJ	-4.5	45.7

AVERAGE DAILY MINIMUM TEMPERATURE (°F)
OCT 30-NOV 5, 1988



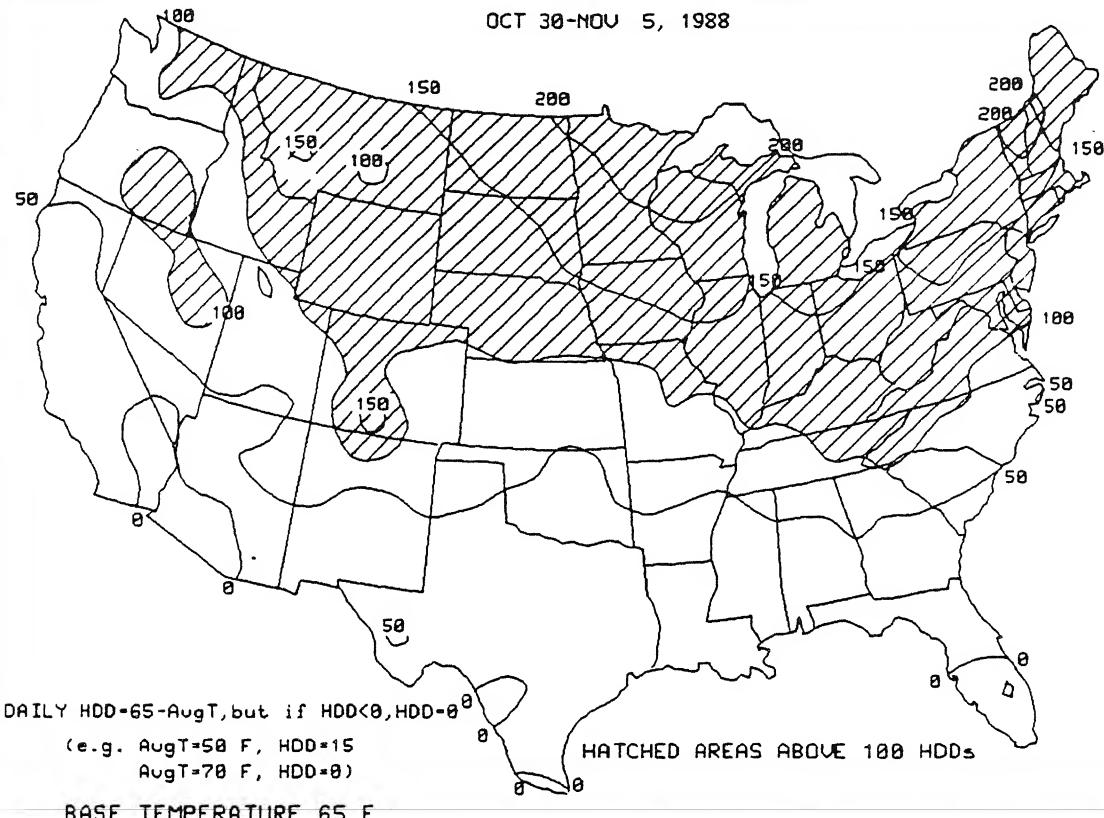


A strong low pressure center stalled over the western Great Lakes, bringing gusty winds and cold weather to the north-central U.S. and wind chills near 0° F to parts of the Midwest (top). Temperatures moderated from the previous week in the Midwest and Northeast, but cold Canadian air sent temperatures into the teens and twenties across much of the region (bottom).



WEEKLY TOTAL HEATING DEGREE-DAYS

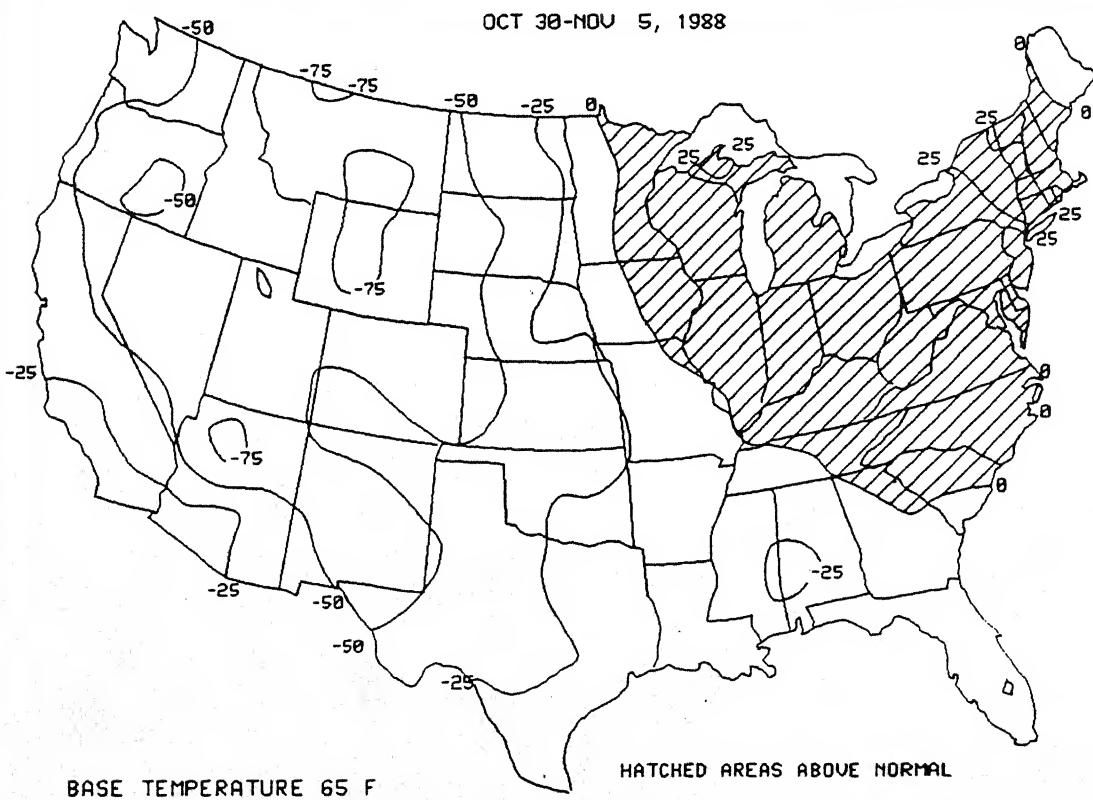
OCT 30-NOV 5, 1988



Persistent abnormally cold weather pushed weekly total heating usage well over 150 HDDs in the northern Great Plains, Midwest and New England states (top). As temperatures in the Northeast and Midwest moderated from the previous week's unseasonably cold conditions, weekly heating demand was only slightly above normal in the area (bottom).

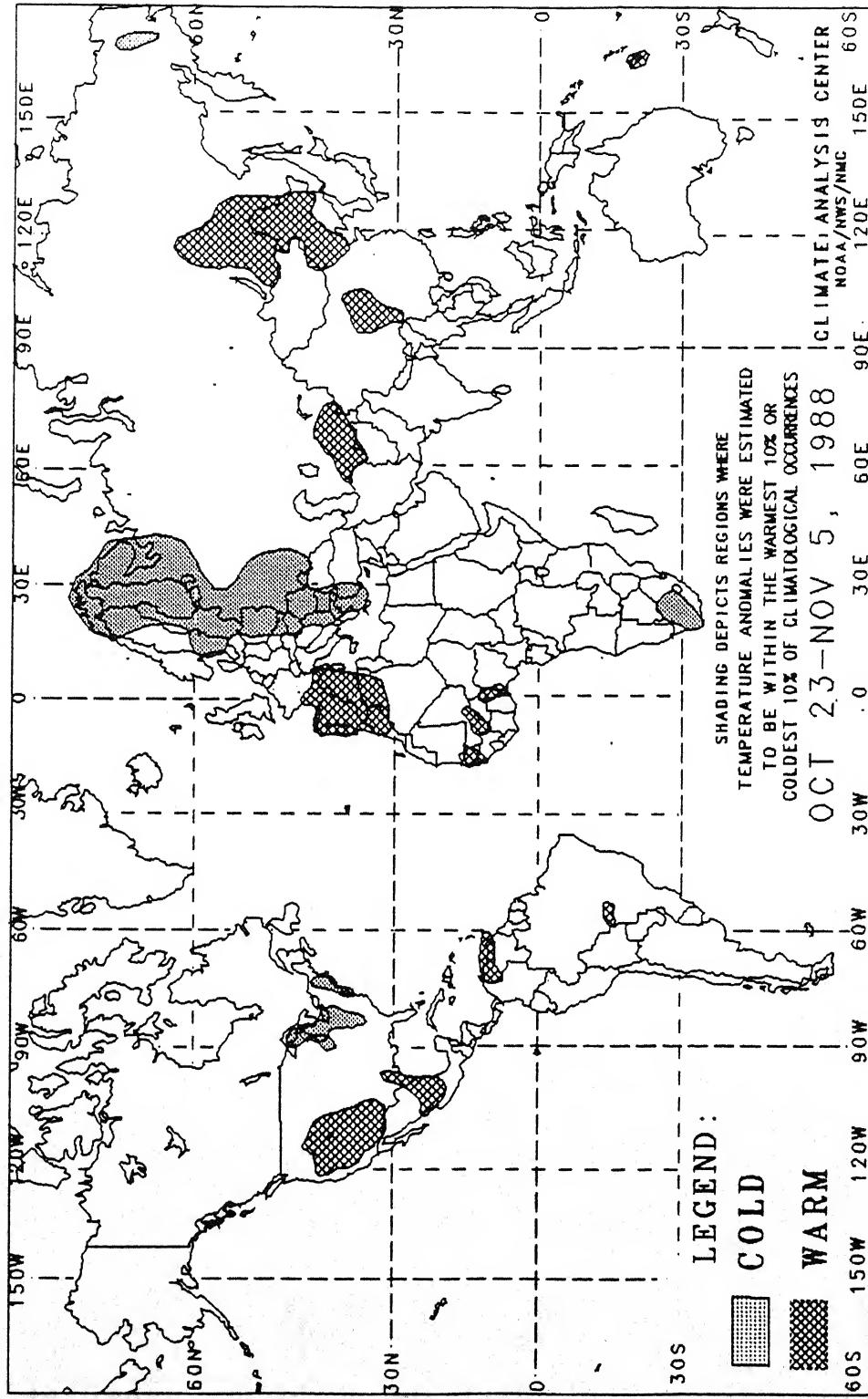
WEEKLY DEPARTURE FROM NORMAL HDD

OCT 30-NOV 5, 1988



GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

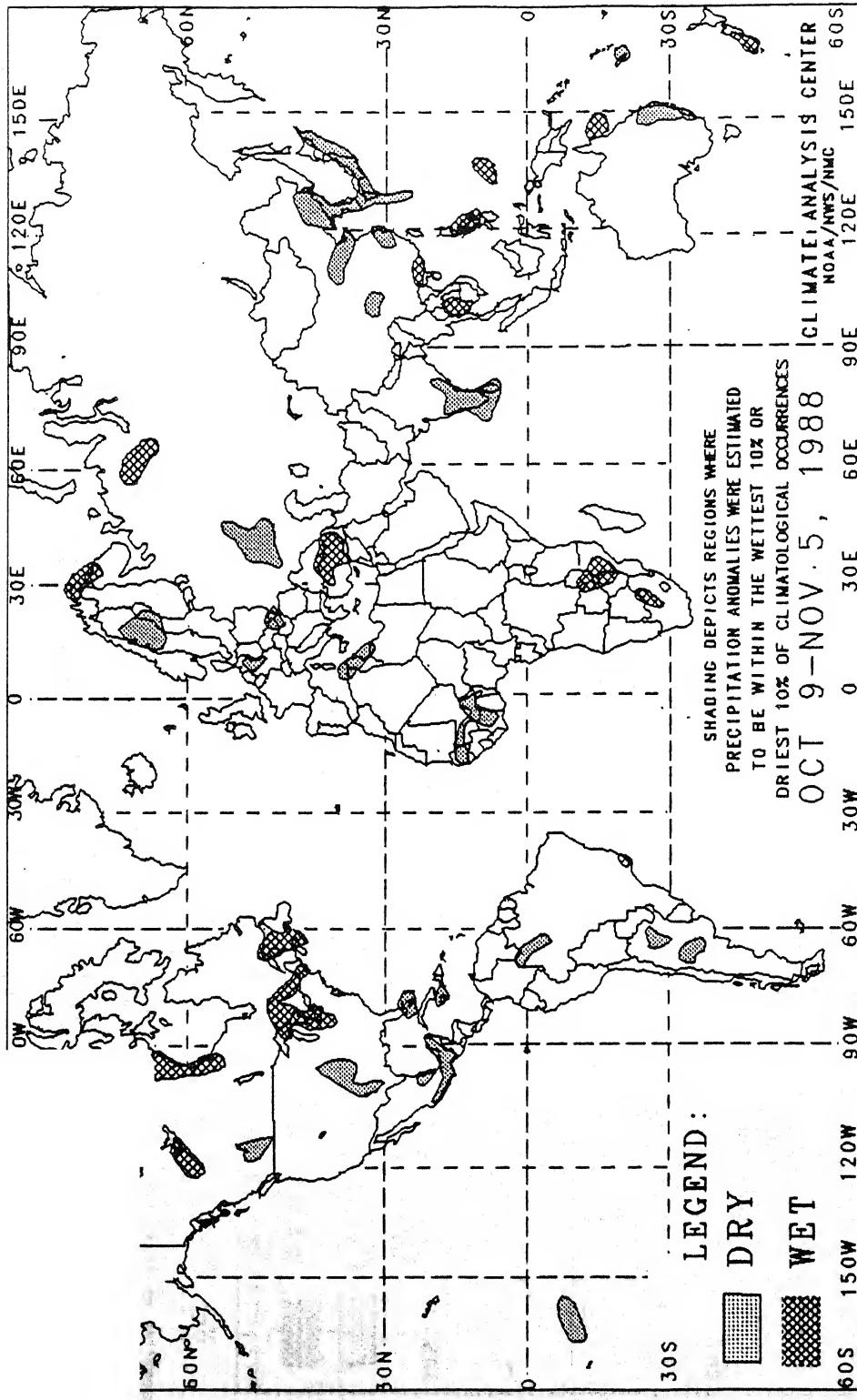
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

CLIMATE ANALYSIS CENTER, NMC

NATIONAL WEATHER SERVICE, NOAA

UNITED STATES CLIMATE SUMMARY FOR THE MONTH OF OCTOBER 1988

In a near-repeat performance of last October, this year produced a number of record weather events throughout most of the United States, especially with regards to temperature. The persistent presence of a deep, low pressure trough over the East and a strong, high pressure ridge over the West in the upper atmosphere brought abnormally cold weather to the eastern half of the nation and unseasonably mild conditions to the Far West. Additionally, many stations in the western half of the country measured little or no precipitation as the ridge blocked or weakened any eastward-migrating Pacific storm systems. In contrast, heavy precipitation fell on portions of the Southeast and Great Lakes. Repeated frontal passages triggered numerous showers and thunderstorms from eastern Texas northeastward to southern Virginia, while two intense low pressure centers dumped ample precipitation on parts of the Great Lakes.

Areas with above normal precipitation were limited to sections of the Southeast, south-central Alaska, along the Great Lakes, and in the southern Intermountain Region (see Figure 1 and Table 1). According to the River Forecast Centers, between 4 and 8 inches of rain was observed at stations in northeastern Texas, southern Arkansas, Louisiana, Mississippi, the central parts of Alabama, Georgia, and the Carolinas, and southern Virginia. Farther north, between 5 and 9 inches of lake-enhanced precipitation was measured by locations along the western side of the Great Lakes, while scattered thundershowers dropped between 2 and 4 inches of rain on the normally dry sections of southern Arizona and southwestern New Mexico.

After three consecutive months of excess precipitation in most of the eastern two-thirds of the nation, extremely dry weather returned to much of the region, especially in the Great Plains, Florida, New England, and the mid-Atlantic (see Figures 1, 2, and Table 2). Farther west, the rainy season normally commences in the Pacific Northwest during the autumn months, but meager

precipitation fell during October over much of the area with the exception of the northern Cascades. Other locations in the West observed little or no precipitation as several stations tied or broke October minimum precipitation records (see Table 5). As the northern Great Plains and northern Rockies entered into their normally dry autumn and winter months, long-term precipitation deficits still remained.

Record and near-record warmth prevailed in the western third of the U.S. and in parts of Hawaii as monthly temperatures averaged between 6° and 9°F above normal throughout the Intermountain Region and in much of the northern and central Rockies (see front cover, Figure 3, and Table 3). Individually, dozens of stations in the West and South tied or set new daily record maximum temperatures during the month, while at least 21 cities recorded their warmest October (see Table 7). Regionally, the Pacific (WA, OR, CA) and Mountain (ID, MT, WY, NV, UT, CO, AZ, NM) states observed their warmest and second warmest October during the past 58 years (since 1931), respectively.

In sharp contrast, unseasonably cold weather persisted in the eastern half of the country and in Alaska (see front cover and Figure 3). Greatest negative temperature departures (between -6° and -10°F) were located in north-central Alaska, the Midwest, the southern and central Appalachians, and the mid-Atlantic (see Table 4). During the month, more than a hundred stations tied or broke their daily minimum temperatures, while several cities observed their coldest October ever (see Table 7). Additionally, New England (ME, NH, VT, MA, CN, RI), the Middle Atlantic (NY, PA, NJ), South Atlantic (WV, DE, MD, VA, NC, SC, GA, FL), East-North Central (WI, MI, IL, IN, OH), East-South Central (KY, TN, AL, MS), and West-North Central (ND, SD, MN, IA, NE, KS, MO) states observed their eighth, second, fourth, fifth, third, and ninth coldest October since 1931 (last 58 years), respectively.

TABLE 1. OCTOBER STATIONS WITH MORE THAN 150% OF NORMAL PRECIPITATION AND MORE THAN FOUR INCHES OF PRECIPITATION; OR, STATIONS WITH MORE THAN SIX INCHES OF PRECIPITATION AND NO NORMALS.

<u>Station</u>	Total (in.)	Pct of Normal	<u>Station</u>	Total (in.)	Pct of Normal
Valdez, AK	11.04	162.8	Atlanta, GA	4.98	198.4
Erie, PA	8.13	225.2	Massena, NY	4.82	184.0
South Bend, IN	6.71	209.7	Muskegon, MI	4.74	171.7
Columbus AFB, MS	6.54	***	Muscle Shoals, AL	4.71	167.6
Milton/Whiting NAS, FL	6.35	***	Sault Ste. Marie, MI	4.57	159.2
Chatham, MA	6.23	167.9	Shreveport, LA	4.44	168.2
Buffalo, NY	6.14	211.0	Pellston, MI	4.42	170.0
Jackson, MS	6.07	256.1	Toledo, OH	4.36	225.9
Raleigh/Durham, NC	5.79	213.6	Meridian, MS	4.29	165.0
Grand Rapids, MI	5.38	201.5	Lafayette, IN	4.27	165.5
Augusta, GA	5.35	266.2	Hancock/Houghton Co., MI	4.24	178.1
Valparaiso/Eglin AFB, FL	5.32	181.6	Monroe, LA	4.24	175.2
Greenwood, MS	5.13	182.6	Jackson, TN	4.14	157.4
Marquette, MI	5.06	155.7	Charlotte, NC	4.14	153.3
Chicago/O'Hare, IL	5.05	255.1			

(Note: Stations without precipitation normals are indicated by asterisks).

PERCENT OF NORMAL PRECIPITATION (%)
1 OCT 88 THRU 31 OCT 88

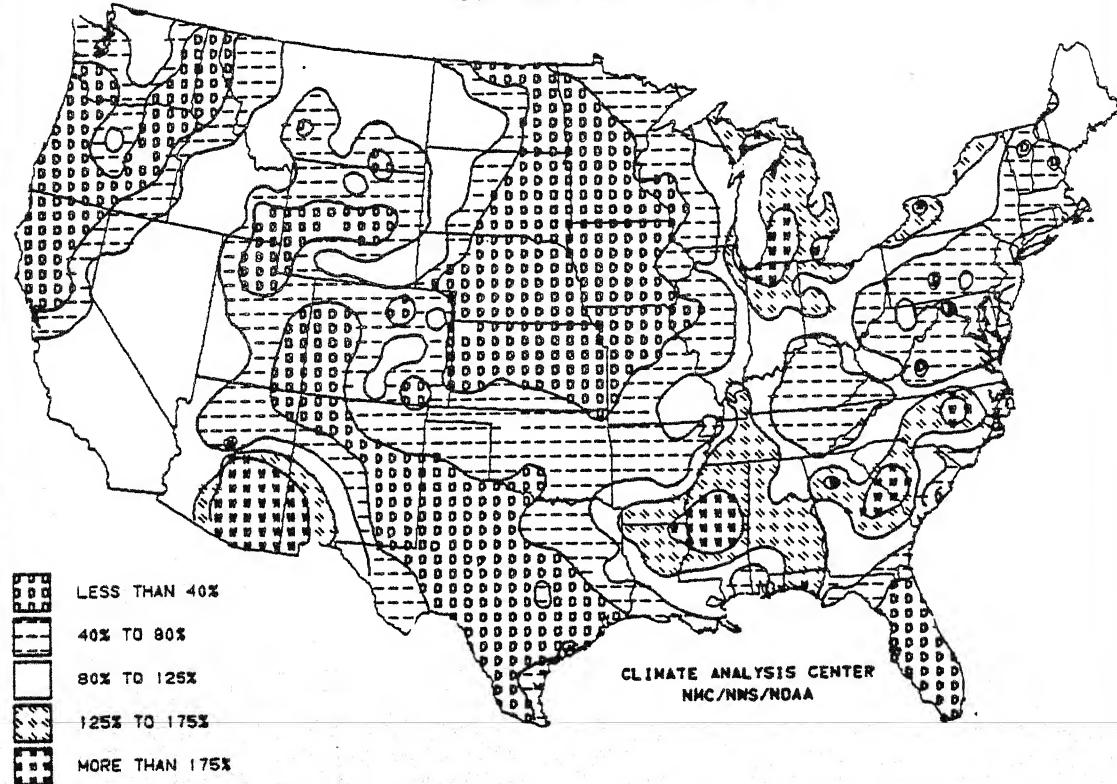


Figure 1. Percent of normal precipitation during October 1988. Much of the central and western U.S. experienced an extremely dry October as many stations measured little or no monthly precipitation (see Tables 2 and 5).

TABLE 2. OCTOBER STATIONS WITH LESS THAN 50% OF NORMAL PRECIPITATION AND 3.00 OR MORE INCHES OF NORMAL PRECIPITATION.

<u>Station</u>	Total (In.)	%of Nml	Nml Amt (In.)	<u>Station</u>	Total (In.)	%of Nml	Nml Amt (In.)
Eugene, OR	0.11	3.2	3.45	Roanoke, VA	1.34	38.8	3.45
Salem, OR	0.12	3.6	3.30	Harrison, AR	1.34	42.1	3.18
Portland, OR	0.20	6.6	3.03	Burlington, IA	1.34	43.9	3.05
Kansas City/Intl., MO	0.21	6.4	3.30	Biloxi/Keesler AFB, MS	1.35	42.4	3.18
Ft. Myers, FL	0.39	10.1	3.86	Lynchburg, VA	1.38	40.9	3.37
Chanute, KS	0.45	13.0	3.45	Orlando, FL	1.40	46.1	3.04
North Bend, OR	0.47	10.6	4.43	Ft. Smith, AR	1.46	45.3	3.22
Quincy, IL	0.61	18.7	3.26	Tulsa, OK	1.48	43.7	3.39
Austin, TX	0.66	19.6	3.36	Poughkeepsie, NY	1.48	44.9	3.30
Key West, FL	0.76	15.3	4.98	Miami, FL	1.49	20.9	7.12
Victoria, TX	0.77	23.3	3.31	Boston/Logan, MA	1.59	47.6	3.34
Gainesville, FL	0.80	24.3	3.29	Lihue, Kauai, HI	1.61	35.8	4.50
Waco, TX	0.98	32.2	3.04	Port Arthur, TX	1.71	46.1	3.71
Ft. Sill, OK	1.00	31.6	3.17	Palacios, TX	1.73	43.4	3.99
McAllen, TX	1.10	34.4	3.20	Vero Beach, FL	1.76	29.6	5.94
College Station, TX	1.11	32.5	3.42	Providence, RI	1.78	47.9	3.72
Daytona Beach, FL	1.15	24.9	4.62	Astoria, OR	2.13	34.2	6.22
Joplin, MO	1.19	35.9	3.31	Olympia, WA	2.20	47.0	4.68
Concord, NH	1.23	39.7	3.10	West Palm Beach, FL	3.52	45.4	7.76
Columbia, MO	1.25	38.8	3.22	Annette Island, AK	8.67	49.4	17.56
Houston, TX	1.30	34.3	3.79				

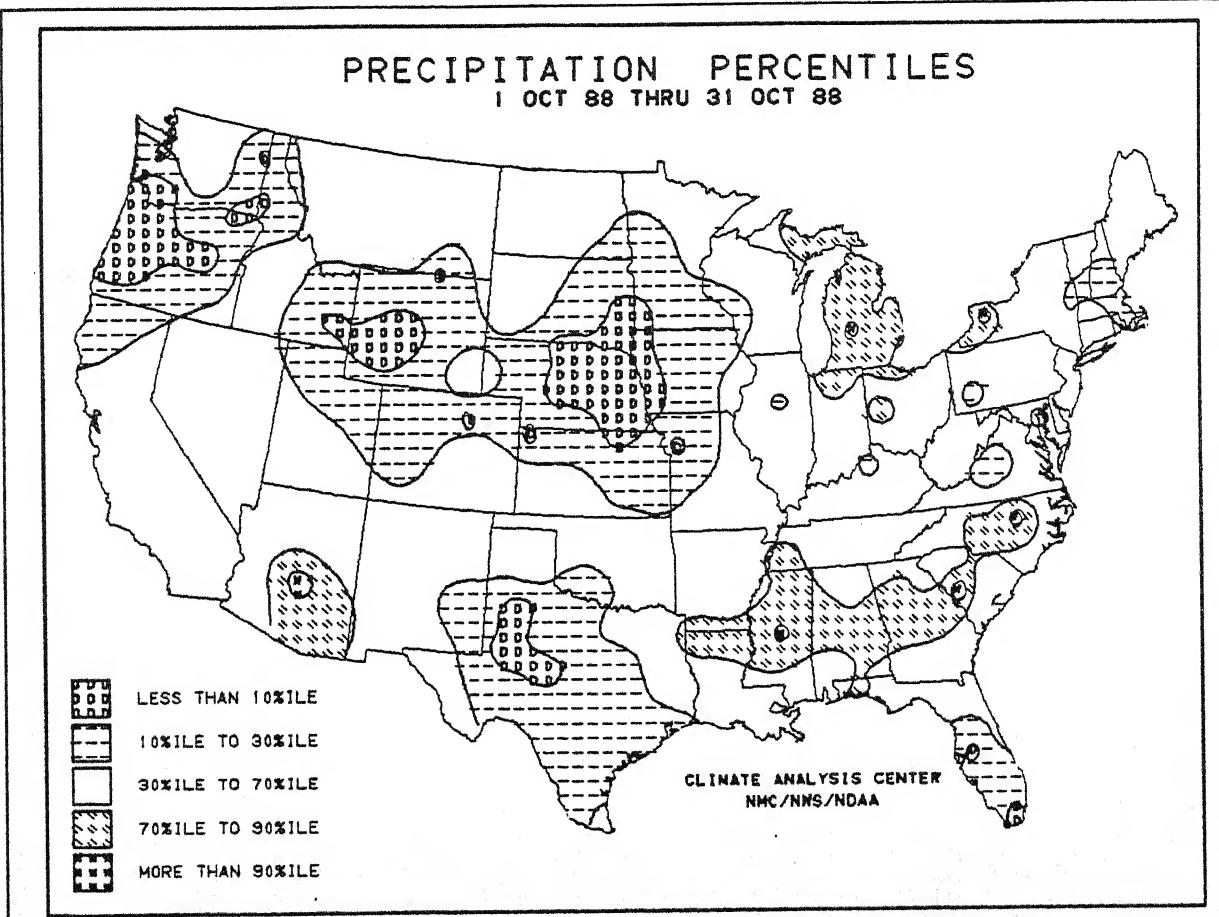


Figure 2. Precipitation percentiles during October 1988. Statistically and historically, many stations in the central and southern Great Plains, Pacific Northwest, and southern Florida recorded one of their driest Octobers ever.

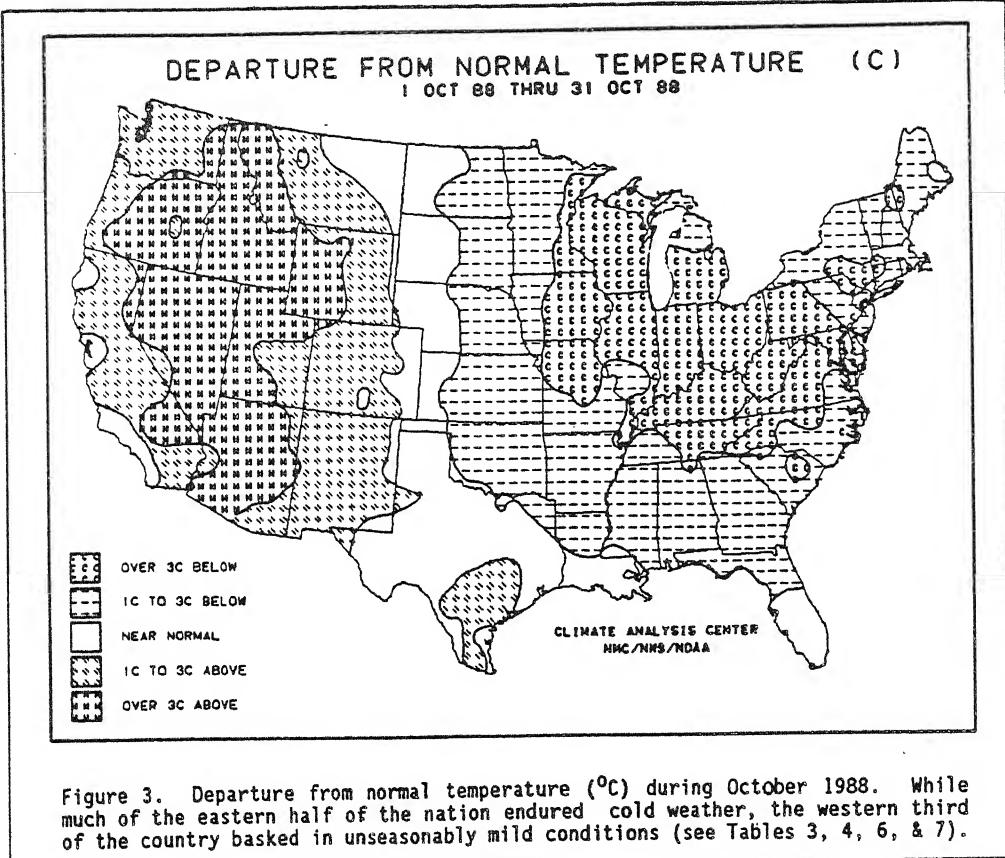


Figure 3. Departure from normal temperature ($^{\circ}\text{C}$) during October 1988. While much of the eastern half of the nation endured cold weather, the western third of the country basked in unseasonably mild conditions (see Tables 3, 4, 6, & 7).

TABLE 3. OCTOBER AVERAGE TEMPERATURES 5.0°F OR MORE ABOVE NORMAL.

Station	Mean	Deg	Station	Mean	Deg
Phoenix, AZ	82.5	+9.1	Winnemucca, NV	55.0	+6.3
Blanding, UT	60.8	+9.0	Missoula, MT	50.5	+6.2
Burley, ID	57.2	+8.6	Butte, MT	47.2	+6.2
Redmond, OR	56.3	+8.3	Glendale/Luke AFB, AZ	76.9	+6.1
Reno, NV	58.4	+8.2	Ely, NV	52.1	+6.1
Boise, ID	59.9	+8.1	Pendleton, OR	58.6	+6.0
Medford, OR	62.0	+7.8	Spokane, WA	53.4	+5.9
Pocatello, ID	55.4	+7.4	Kalispell, MT	48.5	+5.9
Salt Lake City, UT	60.0	+7.3	Cedar City, UT	57.8	+5.8
Las Vegas, NV	74.9	+7.2	Worland, WY	52.1	+5.8
Lewiston, ID	58.8	+7.0	Elko, NV	53.0	+5.5
Yuma, AZ	83.1	+6.9	Delta, UT	57.5	+5.3
Lander, WY	53.7	+6.9	Yakima, WA	55.1	+5.3
Idaho Falls, ID	52.8	+6.9	Tucson/Davis-Monthan AFB, AZ	74.3	+5.2
Rock Springs/Sweetwater, WY	51.7	+6.9	Walla Walla, WA	59.8	+5.2
Prescott, AZ	61.7	+6.6	Burns, OR	52.9	+5.1
Daggett, CA	75.3	+6.4	Tucson, AZ	75.3	+5.0

TABLE 4. OCTOBER AVERAGE TEMPERATURES 6.5°F OR MORE BELOW NORMAL.

Station	Mean	Deg	Station	Mean	Deg
Barrow, AK	2.5	-11.9	Bristol, TN	49.9	-7.1
Bettles, AK	9.5	-10.6	Marquette, MI	37.3	-7.0
Big Delta, AK	17.3	-8.0	Toledo, OH	45.0	-7.0
Parkersburg/Wood Co., WV	47.9	-7.9	Morgantown, WV	47.3	-7.0
Mt. Washington, NH	22.9	-7.8	Burlington, IA	48.6	-7.0
Patuxent River NAS, MD	52.8	-7.8	McGrath, AK	18.4	-6.9
Elkins, WV	44.3	-7.7	Rockford, IL	45.1	-6.9
Park Falls, WI	38.3	-7.6	Akron, OH	45.6	-6.9
South Bend, IN	45.7	-7.5	Columbus, OH	47.1	-6.9
Dayton, OH	47.0	-7.5	Indianapolis, IN	47.8	-6.9
Chicago/O'Hare, IL	46.1	-7.4	Charleston, WV	49.1	-6.8
Huntington, WV	49.2	-7.4	Kansas City/Intl., MO	52.2	-6.8
Lexington, KY	49.5	-7.4	Rochester, MN	42.0	-6.7
Grand Rapids, MI	43.9	-7.3	Saginaw, MI	43.8	-6.7
Cedar Rapids, IA	45.8	-7.3	Mt. Clements/Selfridge AFB, MI	45.5	-6.6
Cincinnati, OH	48.3	-7.3	Cleveland/Hopkins, OH	47.0	-6.6
Bowling Green, KY	50.6	-7.3	Atlantic City, NJ	49.5	-6.6
Bluefield, WV	46.4	-7.2	Sumter/Shaw AFB, SC	57.8	-6.6
Crossville, TN	49.7	-7.2	Waterloo, IA	44.2	-6.5
Knoxville, TN	52.4	-7.2	Findlay, OH	46.4	-6.5
Fairbanks, AK	18.1	-7.1	Columbia, MO	51.1	-6.5
Ft. Wayne, IN	45.8	-7.1			

TABLE 5. RECORD OCTOBER TOTAL PRECIPITATION.

<u>Station</u>	Total (In.)	Normal (In.)	Pct of Normal	Record Type	Records Began
Salem, OR	0.12	3.30	3.6	LOWEST	1951
Eugene, OR	0.11	3.45	3.2	LOWEST	1951
Tampa, FL	0.09	2.31	3.9	LOWEST	1947
Kansas City/Muni., MO	0.00	2.54	0.0	LOWEST	N/A
San Angelo, TX	0.00	2.04	0.0	LOWEST	1951
Midland, TX	0.00	1.39	0.0	LOWEST	1947
Lander, WY	0.00	1.19	0.0	LOWEST	1947
Carlsbad, NM	0.00	1.16	0.0	LOWEST	N/A
Pocatello, ID	0.00	0.91	0.0	LOWEST	1947
Goodland, KS	0.00	0.89	0.0	LOWEST	1951
Boise, ID	0.00	0.73	0.0	LOWEST	1864
Fresno, CA	0.00	0.41	0.0	LOWEST	1947
San Diego, CA	0.00	0.31	0.0	LOWEST	1851
Bakersfield, CA	0.00	0.29	0.0	LOWEST	1947
Los Angeles, CA	0.00	0.25	0.0	LOWEST	1947

(Note: N/A indicates not available).

(Note: Trace precipitation amounts are represented by zero).

(Note: Stations where normal precipitation is < 0.25 inches are not included).

TABLE 6. RECORD OCTOBER EXTREME TEMPERATURES.

<u>Station</u>	Extreme (Degree F)	Record Type	Records Began
Yakima, WA	87	HIGHEST	1947
Quillayute, WA	83	HIGHEST	1966
Bridgeport, CT	26	LOWEST	1948
Allentown, PA	21	LOWEST	1944
Atlantic City, NJ	20	LOWEST	1943
Youngstown, OH	20	LOWEST	1943
South Bend, IN	20	LOWEST	1939
Cleveland/Hopkins, OH	19	LOWEST	1941
Ft. Wayne, IN	19	LOWEST	1939
Grand Rapids, MI	18	LOWEST	1964
Moline, IL	16	LOWEST	1927
La Crosse, WI	14	LOWEST	1951
Madison, WI	13	LOWEST	1940
Waterloo, IA	11	LOWEST	1949
Rochester, MN	11	LOWEST	1961
Marquette, MI	10	LOWEST	1979
Valentine, NE	7	LOWEST	1956
International Falls, MN	2	LOWEST	1939

TABLE 7. RECORD OCTOBER AVERAGE TEMPERATURES.

<u>Station</u>	<u>AvgT (°F)</u>	<u>Nml AvgT</u>	<u>Dep Nml AvgT</u>	<u>Type</u>	<u>Records</u>
					<u>Began</u>
Phoenix, AZ	82.5	73.4	+9.1	HIGHEST	1877
Reno, NV	58.4	50.2	+8.2	HIGHEST	1947
Boise, ID	59.9	51.8	+8.1	HIGHEST	1864
Medford, OR	62.0	54.1	+7.9	HIGHEST	1947
Pocatello, ID	55.4	48.0	+7.4	HIGHEST	1947
Las Vegas, NV	74.9	67.6	+7.3	HIGHEST	1937
Salt Lake City, UT	60.0	52.7	+7.3	HIGHEST	1875
Lewiston, ID	58.8	51.8	+7.0	HIGHEST	1951
Yuma, AZ	83.2	76.3	+6.9	HIGHEST	1878
Lander, WY	53.7	46.8	+6.9	HIGHEST	1947
Winnemucca, NV	55.0	48.7	+6.3	HIGHEST	1885
Missoula, MT	50.5	44.2	+6.3	HIGHEST	1947
Pendleton, OR	58.6	52.5	+6.1	HIGHEST	1947
Ely, NV	52.1	46.0	+6.1	HIGHEST	1947
Kalispell, MT	48.5	42.6	+5.9	HIGHEST	1951
Eugene, OR	57.5	53.2	+4.3	HIGHEST	1951
Roswell, NM	64.0	59.9	+4.1	HIGHEST	1951
Olympia, WA	54.0	50.2	+3.7	HIGHEST	1951
Astoria, OR	55.8	52.7	+3.1	HIGHEST	1953
Quillayute, WA	53.2	50.2	+3.0	HIGHEST	1966
Hilo/Lyman, Hawaii, HI	77.9	75.4	+2.5	HIGHEST	1905
Bettles, AK	9.5	20.1	-10.6	LOWEST	1951
Parkersburg/Wood Co., WV	47.9	55.8	-7.9	LOWEST	1889
Mt. Washington, NH	22.9	30.7	-7.8	LOWEST	1944
Dayton, OH	47.0	54.5	-7.5	LOWEST	1951
South Bend, IN	45.7	53.2	-7.5	LOWEST	1944
Grand Rapids, MI	43.9	51.3	-7.4	LOWEST	1947
Huntington, WV	49.3	56.7	-7.4	LOWEST	1947
Chicago/O'Hare, IL	46.1	53.4	-7.3	LOWEST	1959
Lexington, KY	49.5	56.8	-7.3	LOWEST	1951
Ft. Wayne, IN	45.8	52.9	-7.1	LOWEST	1951
Knoxville, TN*	52.4	59.5	-7.1	LOWEST	1947
Marquette, MI*	37.3	44.2	-6.9	LOWEST	1873
Akron, OH	45.6	52.5	-6.9	LOWEST	1944
Charleston, WV	49.1	55.9	-6.8	LOWEST	1951
Cleveland/Hopkins, OH	47.0	53.6	-6.6	LOWEST	1947
Atlantic City, NJ	49.5	56.1	-6.6	LOWEST	1951
Youngstown, OH	45.0	51.4	-6.4	LOWEST	1944
Lansing, MI	44.1	50.2	-6.1	LOWEST	1959
La Crosse, WI	44.8	50.9	-6.1	LOWEST	1952
Rochester, NY	45.7	51.6	-5.9	LOWEST	1951
Lynchburg, VA	51.3	57.2	-5.9	LOWEST	1871
Beckley, WV	45.9	51.6	-5.7	LOWEST	1951
Washington/Dulles, VA	49.1	54.7	-5.6	LOWEST	1963
Raleigh/Durham, NC	54.3	59.7	-5.4	LOWEST	1947
Allentown, PA	48.1	53.4	-5.3	LOWEST	1951
Hartford, CT	47.3	52.5	-5.2	LOWEST	1947
Philadelphia, PA	51.7	56.7	-5.0	LOWEST	1947
Newark, NJ	52.5	57.2	-4.7	LOWEST	1944

(*Station moved from urban to rural environment in 1979).

